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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/803,044 | 03/12/2001 | Rabah Boukherroub | 10963-US | 8419 |

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EXAMINER

CEPERLEY, MARY

ART UNIT PAPER NUMBER

1641

DATE MAILED: 10/02/2003

12

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/803,044

Applicant(s)

BOUKHERROUB ET AL.

Examiner

Mary (Molly) E. Ceperley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 March 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,4,6-10,12-16,19-25 and 27-35 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

- 5) ☐ Claim(s) _____ is/are allowed.

- 6) ☒ Claim(s) 1,3,4,6-10,12-16,19-25 and 27-35 is/are rejected.

- 7) ☐ Claim(s) _____ is/are objected to.

- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

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1) In the March 17, 2003 amendment to page 3, line 5 *et seq*, the end parenthesis {}} should be deleted.

2) In claim 1 (currently amended), line ten, the added term "prior to thermal processing" is redundant with "prior to said thermal processing" and should be deleted.

3) The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4) Claim 19 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 19 is dependent from canceled claim 18.

5) Claims 1, 3, 4, 5, 7, 15, 16, 21, 23, 25, and 28-35 are again rejected under 35 U.S.C. 102(b) as anticipated by Sieval et al of record.

Sieval et al is applied for the reasons stated in paragraphs **14)** and **15)** of the December 12, 2002 Office action. It is noted that the limitation added by amendment to claim 1 regarding the "deoxygenated" alkene reactant is described in the reference at page 1761, first column, first paragraph under "Monolayer Preparation". The limitation regarding the use of a "purified" alkene reactant is described at page 1760, first paragraph under "General Information": see the distillation of the alkene reactants.

Applicant's arguments filed March 17, 2003 have been fully considered but they are not persuasive. Applicant argues that the "porous" silicon used in the instant invention is materially different from the crystalline silicon used in the reference and that the use of "porous" silicon in a process which thermally reacts surface Si-H groups of the silicon with alkene reactants would not be rendered obvious by the analogous Sieval et al process which uses crystalline silicon. In support of his assertion that the

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two types of silicon are different in nature, applicant further cites a reference describing "porous" silicon as being prepared using a solution of HF (Remarks, page 8).

Applicant's argument is unconvincing. It appears that at least the surface of the solid silicon of Sieval et al is made "porous" by the same method that is used in the instant invention, i.e. by surface reaction with HF. Compare Sieval et al, Figure 1 and the first paragraph under "Monolayer Preparation" of page 1761 with the description in the instant specification at page 7, lines 14-23 wherein the surface of a silicon wafer is treated with HF. Thus, it appears that the Sieval et al method is the same as (anticipates) the method of instant claim 1 since both methods use solid silicon which has a "porous" surface formed using HF. Indeed, the "single side polished (100) p-type silicon wafers" used in the Example of page 7 of the instant application appear to be identical to the "silicon substrates" of Sieval et al which are "either pieces of double-polished silicon (Si(100), n- or p-type, 250micron thickness)), shards of single-polished silicon (Si(100), n- or p-type, 500 micron thickness), or Si(100) parallelogram plates". Thus, the "porous silicon" used in the instant method appears to be the same as the silicon used in the Sieval et al method.

Applicant's argument (Remarks, page 9, third paragraph) that there is a distinction between the "functionalized" surface of Sieval et al and the surface of the instant invention which contain "a protective organic passivating layer" is not, in fact, a difference in view of the fact that the alkene of the instant invention may contain a "functional" group as described in the claim 6 definitions of the alkene reactants. Compare the ethyl undecylenate reactant of instant claim 6 with the undecylenic acid esters of Sieval et al (page 1760, "Syntheses").

6) Claims 8-10, 12-14, 19, 20, 22, 24, and 27 are again rejected under 35 U.S.C. 103(a) as being unpatentable over Sieval et al of record.

Both the statements made in paragraph **5)** above and the reasoning set forth in paragraph **15)** of the December 16, 2002 Office action apply to this rejection. Applicant has not specifically addressed this rejection (see the last Office action, paragraph **15)**) in his response of March 17, 2003.

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7) THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8) Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary (Molly) E. Ceperley whose telephone number is (703) 308-4239. The examiner can normally be reached from 8 a.m. to 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long V. Le, can be reached on (703) 305-3399. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-4556 or (703) 305-3592.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

September 09, 2003


Mary (Molly) E. Ceperley
Primary Examiner
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